REMARKS

Before entry of this Amendment and Response, the status of the application according to the pending Office action is as follows:

- Claims 1-4, 12, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,529,183 to MacLean et al. (hereinafter "MacLean") in view of U.S. Patent No. 6,344,848 to Rowe et al. (hereinafter "Rowe");
- Claims 5-11 and 17-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over MacLean in view of Rowe, and further in view of U.S. Patent Application Publication No. 2001/0002098 to Haanpaa et al. (hereinafter "Haanpaa");
- Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over MacLean in view of Rowe, and further in view of U.S. Patent No. 4,837,734 to Ichikawa et al. (hereinafter "Ichikawa");
- Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over MacLean in view of Rowe and Ichikawa, and further in view of U.S. Patent No. 4,318,096 to Thornburg et al. (hereinafter "Thornburg");
- Claim 15 is objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims; and
- Claims 27-51 are withdrawn.

With this Amendment and Response, Applicants hereby amend claims 1, 5, and 6, cancel claims 27-51 without prejudice, and add new claims 54-64. Claim 52-53 were cancelled in the previous Amendment and Response to Restriction Requirement. New claim 54 is objected to claim 15 rewritten in independent form, including the subject matter of the base claim and all

intervening claims. Claims 55-64 recite additional subject matter which Applicants regard as the invention, and which read on the elected group. Support for the amended and new claims may be found in the application as filed, at least at paragraphs **[0027]-[0029]**, **[0031]-[0034]**, and **[0067]**, and FIGS. 3B, 3C, and 12. No new matter is added thereby.

1. Claims 1-4, 12, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over MacLean in view of Rowe. Applicants respectfully traverse the rejection as applied to the claims, as amended.

MacLean appears to describe a haptic interface device 501 including a base 501a, an actuated hinge system 501b, and a receptacle 501c. MacLean, col. 15, ll. 44-46. The disclosed device 501 also includes a number of tagged objects 502a, 502b, 502c that have the physical characteristics of a particular type of writing implement, for example, a brush 502a, a pencil 502b, or a piece of chalk 502c. *Id.*, col. 16, ll. 1-6, 12-15. The identity of the tagged object 502a, 502b, 502c to a computer 504 may be communicated either directly from the tagged object 502a, 502b, 502c, or indirectly via the haptic interface 501. *Id.*, col. 16, ll. 21-24.

Rowe appears to describe a two-part stylus or assembly 100 used to enter data into a personal electronic device. Rowe, col. 3, ll. 7-9. The stylus 100 includes a stylus body 110, a stylus point 120, and a stylus tip 130 attached thereto. *Id.*, col. 3, ll. 20-21, 36-38. The various components may be coupled as described in the specification or using "a suitable conventional coupling." *Id.*, col. 3, ll. 23-26. The stylus tip 130 may be formed of any suitable material, but is preferably made from the same material as the stylus point 120, which is formed from a material that allows for entering of data into an electronic device without harming a data input interface of the device (e.g., a touch sensitive screen). *Id.*, col. 3, ll. 30-35. One or more tools 200 are secured to one of the stylus body 110 or stylus point 120. *Id.*, col. 3, ll. 49-54, FIGS. 2A-2B; *see*

also FIGS. 4A-4D. The tool 200 may be used to perform certain maintenance or reset functions on the personal electronic device. *Id.*, col. 3, l. 65 – col. 4, l. 8.

It is well-settled that in using a reference for a rejection under 35 U.S.C. § 103(a), the disclosure of the reference cannot be read in such a way that the principal operation of the reference is changed. *See* MPEP § 2143.01(VI); *see also In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). A proposed modification cannot render the prior art unsatisfactory for its intended purpose. See MPEP § 2143.01(V); *see also In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The Office action concedes that MacLean lacks a detachable user connection section, and appears to reference Rowe because it discloses a detachable feature. The Office action appears to suggest that the point of the stylus could function as the "nose" as claimed in original claim 1, thus making the stylus body (i.e., the "user connection section," as claimed), "detachable and interchangeable" with the nose section. Applicants respectfully submit that such a combination is improper, as combining MacLean with Rowe would change the principal operation of Rowe, and would render Rowe unsatisfactory for its intended purpose.

Applicants note that Rowe merely discloses a stylus for entering data into a personal electronic device. The stylus has a removable point to expose a tool secured to either the stylus body or stylus point. Applicants respectfully submit that, were the stylus described in Rowe to be used with the haptic interface device described in MacLean, at the most, the entire stylus would be used in a manner similar to the tagged objects described in MacLean. It would not, however, be used to "detachably secure" a user connection section to a nose section as recited in amended independent claim 1. With the stylus point secured to the haptic interface, as suggested in the Office action, a user would be unable to use the stylus to enter data in the personal

electronic device, which appears to be a primary function of the stylus described in Rowe. Moreover, if the user removed the stylus body from the stylus point, this would expose the tool while the stylus point remained secured to the haptic interface. This would compel a user to attempt to use the exposed tool of the stylus to enter data into the electronic device. However, the tool itself presumably can cause damage to the electronic device, which is why it is ordinarily covered by the stylus point. Thus, securing the stylus point of Rowe to the haptic interface would render the stylus of Rowe unsuitable for its intended use: to enter data into a personal electronic device without damaging the device.

Even in view of the above, should the rejection under MacLean in view of Rowe be maintained, Applicants respectfully submit that the Office action fails to establish a prima facie case of obviousness. To do so, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art references must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP § 706.02(j). Applicants respectfully submit that the proposed combination fails to render obvious amended claim 1, because, even if the references are combined, which they can not be, the proposed combination fails to teach or suggest all the claim limitations.

Amended claim 1 recites a force reflecting haptic interface comprising "a nose section secured to the force reflecting haptic interface, the nose section comprising at least one electrical wiring circuit; and a user connection section detachably secured to the nose section, the nose section interchangeable with alternative user connection sections, wherein the at least one

electrical wiring circuit allows for direction of an electronic signal from the user connection section to the force reflecting haptic interface." Applicants respectfully submit that the proposed combination of MacLean and Rowe fails to render obvious a force reflecting haptic interface comprising "a nose section secured to the force reflecting haptic interface, the nose section *comprising at least one electrical wiring circuit*; and a user connection section *detachably secured to the nose section*, the nose section *interchangeable with alternative user connection sections*, wherein the at least *one electrical wiring circuit allows for direction of an electronic signal* from the user connection section to the force reflecting haptic interface."

First, MacLean does not teach or suggest a force reflecting haptic interface including a nose section comprising at least one electrical wiring circuit that allows for direction of an electronic signal. In fact, there appears to be no disclosure of any electrical wiring circuit in the receptacle. While MacLean discloses "a simple electronic identification device" that is utilized on the *tagged objects*, it does not disclose any corresponding components on the *receptacle* that communicate with that device. Rowe does not correct this deficiency, as it does not disclose any electrical wiring circuit, either in the stylus body or in the stylus point.

Second, and as noted in the Office action, MacLean also does not teach or disclose a detachable user connection section. Instead, a number of different tagged objects may be *inserted into* the receptacle, but these are not "detachably secured to the nose section," as claimed in amended claim 1. MacLean does not teach or suggest any structure that allows the tagged objects to be secured to, but still detachable from, the receptacle. Rowe does not correct this deficiency. Rowe discloses a stylus having a point that is detachable to allow for exposure of a tool within the stylus itself; it is not detachable to allow for *interchangeability* of user connection sections, as proposed in the Office action. Rowe indicates that a suitable

conventional coupling *may be used to connect* the stylus body and stylus point, but does not disclose that *any type of stylus body* may be connected to the stylus point. In short, Applicants respectfully submit that a user would merely use the entire stylus of Rowe in a manner similar to how the tagged objects of MacLean are used. That is, the user would simply insert the stylus of Rowe into the receptacle and operate the haptic interface device as disclosed in MacLean.

The proposed combination of MacLean and Rowe also fails to render obvious a number of claims that depend from amended independent claim 1. Claim 3, for example, discloses a jack and chuck arrangement that is used to couple the user connection section to the nose section. Neither MacLean nor Rowe disclose such structure. As noted above, the tagged object of MacLean is not detachably secured to the receptacle, and Rowe (to the extent it is properly combinable with MacLean, which it is not) merely notes that the stylus point and body may be coupled using a suitable conventional coupling, without more. Since the Office action identifies no jack and chuck arrangement that may be considered a "conventional coupling," Applicants respectfully submit that dependent claim 3 is independently patentable over the combination of MacLean and Rowe.

Additionally, with regard to claim 16, neither MacLean nor Rowe teach or suggest, either alone or in proper combination, "a sensor for outputting a signal representative of a position of the user connection section relative to the nose section." As noted above, the receptacle of MacLean is simply that: a receptacle. It does not appear to include any sensor to output a signal of any sort, let alone a signal representative of a *position* of a tagged object relative to the receptacle itself. Rowe fails to cure this deficiency, as there is no sensors disclosed in any component of the stylus. In view of the above, Applicants respectfully submit that dependent claim 16 is independently patentable over the combination of MacLean and Rowe.

Accordingly, Applicants respectfully submit that amended independent claim 1 is patentable under 35 U.S.C. § 103(a) over MacLean in view of Rowe. Since dependent claims 2-4, 12, and 16 depend directly from amended claim 1, and include all the respective limitations thereof, Applicants respectfully submit that those claims are patentable as well. Applicants also respectfully submit that claims 3 and 16 are independently patentable for the additional reasons identified above. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 1-4, 12, and 16 under 35 U.S.C. § 103(a) over MacLean in view of Rowe.

2. Claims 5-11 and 17-26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over MacLean in view of Rowe, and further in view of Haanpaa. Applicants respectfully traverse the rejections as applied to the claims, as amended.

The disclosures of MacLean and Rowe are described above. Haanpaa appears to disclose a haptic pointing device having two user-definable buttons 17 on a stylus 16. Haanpaa, ¶ **[0053]**. The haptic pointing device also includes a stylus resting point 9 including a home microswitch 8 that notifies the control system when the home stud 7 is inserted into the resting point 9. *Id.*, ¶ **[0054]**; FIG. 11. The home stud 7 appears to be a projection that contacts the microswitch 8 when inserted into the resting point 9; no additional structural details regarding these elements are provided. *Id.*, FIG. 11.

In contrast, amended independent claim 1 recites a force reflecting haptic interface comprising "a user connection section detachably secured to the nose section, the nose section interchangeable with alternative user connection sections." Applicants respectfully submit that the proposed combination of MacLean, Rowe, and Haanpaa fails to render obvious a force

reflecting haptic interface comprising "a user connection section *detachably secured to the nose section*, the nose section *interchangeable with alternative user connection sections*."

As noted above in more detail, the proposed combination of MacLean and Rowe, in addition to being improper, fails to teach or suggest "a user connection section detachably secured to the nose section, the nose section interchangeable with alternative user connection sections," as recited in amended claim 1. Haanpaa fails to correct this deficiency, as there is no disclosure that the stylus is detachably secured to the nose section, or that the nose section is interchangeable with alternative user connection sections. Instead, the stylus of Haanpaa appears to be a single unit, without detachable components. Accordingly, Applicants respectfully submit that the proposed combination of MacLean, Rowe, and Haanpaa fails to render obvious amended claim 1, from which all remaining claims depend.

The proposed combination of MacLean, Rowe, and Haanpaa also fails to render obvious a number of claims that depend from amended independent claim 1. The proposed combination fails to render obvious amended claims 5 and 6, each of which require "a user input on the user connection section," which, as recited in amended independent claim 1, is detachably secured to the nose section. MacLean does not appear to disclose any user inputs on any of the tagged objects, to the extent those objects can even be considered "detachably secured" to the receptacle of the haptic interface device, which, as Applicants argue above, they can not. Rowe does not disclose any inputs on either the stylus body or the stylus point, and thus can not correct the deficiency of MacLean. Finally, while Haanpaa does disclose buttons on the stylus, no part of that stylus is detachable; accordingly, the buttons are not located on a detachable user connection section. Therefore, Applicants respectfully submit that the proposed combination of MacLean, Rowe, and Haanpaa fails to render obvious amended claims 5 and 6.

The proposed combination also fails to render obvious dependent claims 18 and 19. Neither MacLean nor Rowe disclose a docking station as recited in claims 18 and 19. While Haanpaa does disclose a resting point, to the extent that the resting point comprises the claimed "projection" (the microswitch), there is no "mating recess" formed on the user interface (the home stud). Indeed, no disclosure regarding the geometry or shape of the home stud is provided. Similarly, to the extent the home stud comprises a "projection" as claimed, there is no "mating recess" formed on the microswitch. It is simply a microswitch, and no additional disclosure about the switch is provided. In addition to the above arguments, since there are no projections and mating recesses on the components disclosed in Haanpaa, there is no sensor for indicating mating of the projection and the recess, as claimed in dependent claim 19. Accordingly, Applicants respectfully submit that the proposed combination of MacLean, Rowe, and Haanpaa fails to render obvious amended claims 18 and 19.

Applicants respectfully submit that amended claim 1 is patentable under 35 U.S.C. § 103(a) over MacLean in view of Rowe and further in view of Haanpaa. Since dependent claims 5-11 and 17-26 depend, either directly or indirectly, from amended claim 1, and include all the respective limitations thereof, Applicants respectfully submit that those claims are patentable as well. Applicants also respectfully submit that claims 5, 6, 18, and 19 are independently patentable for the additional reasons identified above. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 5-11 and 17-26 under 35 U.S.C. § 103(a) over MacLean in view of Rowe and further in view of Haanpaa.

3. Claim 13 is rejected under 35 U.S.C. § 103(a) as being unpatentable over MacLean in view of Rowe, and further in view of Ichikawa. Applicants respectfully traverse the rejection as applied to the claim, as amended.

The disclosures of MacLean and Rowe are detailed above. Ichikawa appears to disclose a remote manipulation system of the master-slave type. Ichikawa, Abstract. The system includes a master 101 that controls a slave 107. *Id.*, col. 3, ll. 64-68; FIG. 1. The slave 107 appears to include a gripper (unnumbered) that is used to transmit certain gripping forces from the master 101 to the slave 107. *See e.g., id.*, col. 2, ll. 49-64; col. 13, ll. 18-27; col. 14, ll. 54-59. Few details regarding the gripper are disclosed, but it appears to be depicted in several figures as having two opposing extensions that allow it to grip objects in response to controls by the master 101. *See e.g., id.*, FIGS. 1, 2, 5, 11, 12, 22, 29.

In contrast, amended claim 1 recites a force reflecting haptic interface comprising "a user connection section detachably secured to the nose section, the nose section interchangeable with alternative user connection sections." Applicants respectfully submit that the proposed combination of MacLean, Rowe, and Ichikawa fails to render obvious a force reflecting haptic interface comprising "a user connection section *detachably secured to the nose section*, the nose section *interchangeable with alternative user connection sections*."

As noted above, the proposed combination of MacLean and Rowe fails to teach or suggest "a user connection section detachably secured to the nose section, the nose section interchangeable with alternative user connection sections," as recited in amended claim 1. Ichikawa fails to correct this deficiency, as it relates to a master-slave type system including a slave with gripper elements, not to a force reflecting haptic interface having a user connection section detachably secured to a nose section.

Moreover, Applicants respectfully disagree with the assertion in the Office action that Ichikawa discloses a yoke assembly coupled to the nose section as recited in claim 13. The slave appears to include two gripper elements that are required to grip and otherwise manipulate

various items. However, the gripper does not appear to be a yoke assembly, as recited in claim 13, nor is any part of the slave coupled to any "nose section," as claimed. In fact, it appears that coupling the gripper of the slave to anything would render the slave unsuitable for its intended purpose, i.e., to mimic the movements of the remote master, including gripping and other manipulation functions.

Accordingly, Applicants respectfully submit that amended claim 1 is patentable under 35 U.S.C. § 103(a) over MacLean in view of Rowe and further in view of Ichikawa. Since dependent claim 13 depends directly from amended claim 1, and includes all the respective limitations thereof, Applicants respectfully submit that claim 13 is patentable as well. Applicants also respectfully submit that claim 13 is independently patentable for the additional reason identified above. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 13 under 35 U.S.C. § 103(a) over MacLean in view of Rowe and further in view of Ichikawa.

4. Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over MacLean in view of Rowe and Ichikawa, and further in view of Thornburg. Applicants respectfully traverse the rejection as applied to the claim, as amended.

The disclosures of MacLean, Rowe, and Ichikawa are detailed above. Thornburg discloses a graphic input pen 10 having a circumferential seat 22 for comfort during use. Thornburg, col. 3, ll. 8-12. As described in Thornburg, and as depicted in FIG. 1, the circumferential seat 22 may be integrally molded with the housing of the pen 10. No additional detail regarding the structure of the seat 22 is provided, but FIG. 2, which is a sectional view of the pen 10, depicts the seat 22 as angled slightly toward an end 26 of the pen 10.

Amended claim 1 recites a force reflecting haptic interface comprising "a user connection section detachably secured to the nose section, the nose section interchangeable with alternative user connection sections." Applicants respectfully submit that the proposed combination of MacLean, Rowe, Ichikawa, and Thornburg fails to render obvious a force reflecting haptic interface comprising "a user connection section *detachably secured to the nose section*, the nose section *interchangeable with alternative user connection sections.*"

As noted above, the proposed combination of MacLean, Rowe, and Ichikawa fails to teach or suggest "a user connection section detachably secured to the nose section, the nose section interchangeable with alternative user connection sections," as recited in amended claim 1. Thornburg fails to correct this deficiency, as it relates simply to a hand-held graphic input pen, not to a force reflecting haptic interface having a user connection section detachably secured to a nose section.

Moreover, Applicants respectfully disagree with the assertion in the Office action that Thornburg discloses a pair of projections for mating with a yoke assembly. The circumferential seat is not a pair of projections; rather, it is some type of raised element that encircles the pen. A cursory inspection of FIG. 2 confirms this: the alleged "projections" are simply the circumferential seat, in section view. Moreover, there is no disclosure in any reference of a "yoke assembly compris[ing] two hinged halves adapted to capture a pair of projections extending from the nose section," as required by dependent claim 14. As noted above with regard to Ichikawa, no yoke assembly is disclosed, nor does the gripper of Ichikawa appear to function as a yoke assembly. Moreover, to the extent that the gripper of Ichikawa is considered a yoke assembly, which it can not be, there is no disclosure that the gripper is constructed of two hinged halves, as required by claim 14.

Accordingly, Applicants respectfully submit that amended claim 1 is patentable under 35 U.S.C. § 103(a) over MacLean, Rowe, and Ichikawa, and further in view of Thornburg. Since dependent claim 14 depends indirectly from amended claim 1, and includes all the respective limitations thereof, Applicants respectfully submit that claim 14 is patentable as well. Applicants also respectfully submit that claim 14 is further patentable for the additional reason identified above. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 14 under 35 U.S.C. § 103(a) over MacLean, Rowe, and Ichikawa, and further in view of Thornburg.

5. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants appreciate the Examiner's recognition of the allowability of this claim, and present new claim 54, which incorporates the subject matter of claims 1 and 13-15.

6. Applicants also present new claims 55-64, which Applicant respectfully submit read on the elected group. Applicants respectfully submit that these new claims are patentable over the prior art of record, at least because the cited prior art does not teach or suggest, either alone or in combination, the elements of claim 1, from which claims 55-64 either directly or indirectly depend. Accordingly, Applicants respectfully submit that claims 55-64 are patentable, and respectfully request allowance thereof.

CONCLUSION

In view of the foregoing, Applicants respectfully request reconsideration, withdrawal of all grounds of rejection and objection, and allowance of claims 1-26 and 54-64 in due course. The Examiner is invited to contact Applicants' undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

Date: October 11, 2007
Registration No. 42,545

Tel. No.: (617) 570-1607
Fax No.: (617) 523-1231
Customer No. 051414

Electronic Signature: / John V. Forcier/
John V. Forcier
Attorney for the Applicants
Goodwin Procter LLP
Exchange Place
Boston, Massachusetts 02109

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